Hamilton Street Dam (Dam #7)
Lehigh River
Allentown
Lehigh County
Pennsylvania

HAER No. PA-89

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERINC RECORD
MID-ATLANTIC REGION NATIONAL PARK SERVICE
DEPARTMENT OF THE INTERIOR
PHILADELPHIA, PENNSYLVANIA 19106

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HISTORIC AMERICAN ENGINEERING RECORD

Hamilton Street Bridge (Dam #7)

HAER No. PA-89

Location:	Lehigh River at Hamilton Street Allentown, Lehigh County, Pennsylvania
Date of Construction:	1829
Present Owner:	Commonwealth of Pennsylvania Department of Environmental Resources P. O. Box 1467 Harrisburg, Pennsylvania 17120
Present Use:	None
Significance:	The Hamilton Street Dam is an integral part of the Lehigh Canal, which was of major economic importance in the development of industry in the Lehigh Valley in the nineteenth century. The V-shaped, wooden and rock crib dam provided all the water needed to operate the canal's Section 7 which passes through Allentown and Bethlehem.
Project Information:	Construction of a new eastern section of the Hamilton Street Dam is to be funded by the Heritage Conservation and Recreation Service (HCRS) Under Section 106 of the National Historic Preservation Act of 1966, mitigative documentation was undertaken by HCRS and the Pennsylvania Department of Environmental Resources between 1981 and 1983.
Transmitted by:	Jean P. Yearby, HAER, 1985

The Hamilton Street Dam is of great historical significance. It was an integral part of the Lehigh Canal, which was the most important of Pennsylvania's canals due to its longevity and catalytic economic impact.

The Lehigh Canal was completed for both ascending and descending navigation in 1829. It was constructed by the Lehigh Coal and Navigation Company, which had virtual ownership of the entire Lehigh River System. The canal was 46.6 miles in length and stretched between Jim Thorpe (formerly Mauch Chunk) and Easton.

It was designed as a navigation system. This type of canal consists of a combination of dammed sections of a river "slackwater" connected by separate man-made channels. Approximately one-third of the Lehigh Canal's length is "slackwater" and the remaining portions are channel navigation. Dams such as the Hamilton Street Dam were perhaps the most important structures on the canal, since they not only created the slackwater portions of the canals, but they also provided water for the succeeding channel sections.

The crossover points between the slackwater and channel sections of the Lehigh Canal were the guard locks. Guard locks were built either in or near each dam. In most cases, guard locks did not raise or lower boats, as conventional lift locks do, but they simply served as a safety device to protect the channel sections of the canal from damage due to minor flooding. Under normal circumstances, the gates would be kept open to allow the free passage of boats. They would not be closed during a high water threat, since their high and massive upstream gates would serve as flood walls. The guard lock at the Allentown dam is rather unique, due to the fact that it also had a very limited lift capacity.

The dam itself is a V-shaped wooden and rock crib structure that was covered with planking. The planking was renewed at regular intervals and the cribbing restored less frequently. The last notice of Lehigh Coal and Navigation Company doing major repairs to the dam was 1931, although minor maintenance was done on this structure until 1942. After that date, all maintenance was done under the auspices of the city or state.

The Hamilton Street Dam provided all the water needed to operation Section 7 of the Lehigh Canal. This section is approximately seven miles in length, and it passes through the cities of Allentown and Bethlehem, the borough of Freemansburg and Bethlehem Township. It ends at "Hope's Lock" which is now a part of the Hugh Moore Park of the city of Easton. Section 7 also contains guard lock No. 7 and lift locks Nos. 40 to 46. This entire system operated in full navigational use until 1932 and it remained in partial operation until 1943. After that date, the Lehigh Canal was used only for coal silt reclamation, as an industrial water source, and a place for recreation. No towpath (animal-pulled boats) canal operated for a longer period.

The most important aspect of the Lehigh Canal's history was its enormous economic impact on both Pennsylvania and the communities of the Lehigh Valley. In a larger sense, the construction of the Lehigh Canal was the greatest single factor in making anthracite coal one of America's most important domestic and industrial fuels. In more local sense, the building of the Lehigh Canal transformed the Lehigh Valley from a rural agricultural area dominated by German-speaking people into an urbanized industrialized area. In fact, Professor Thomas Hughes of the University of Pennsylvania stated in the "Ironbridge" program of the 1979 NOVA Public TV series that the Lehigh Valley was "one of the birthplaces of the Industrial Revolution due to the building of the Lehigh Canal." To make this point even clearer, the following analysis of the growth of major municipalities of this region during the first half of the nineteenth century is presented as part of this report.

	Allentown	Bethlehem	Easton
1800	573	1343	1045
1820	1132	1860	2370
1830	1544	1800	3529
1840	2493	2989	4865
1850	3779	3620	7250
1860	8025	4861	8944
1870	13884	4512	10987

The population growth shown by the above figures was made possible by the many new jobs that were created by industries which located along the Lehigh Canal. They moved to his location in order to utilize its cheap water power and coal transport resources. The iron industry in particular underwent a dramatic transformation due to these two economic advantages that were provided by the Lehigh Canal.

Before 1839-40, almost all of the iron produced in America was made by charcoal furnaces. These furnaces had rapidly depleted America's hard wood forests. By 1830, charcoal had become an expensive and scarce fuel. More importantly, charcoal iron furnaces were small in size and rather inefficient due to the fact that charcoal's fragile composition prevented it from supporting a large furnace charge of heavy iron ore and limestone. As a result, American iron furnaces were at an increasing commercial disadvantge in relation to the larger and more efficient coke-fueled furnaces of England and Germany. To solve this growing problem and also to increase their sales of coal and to lease more manufacturing sites, the Lehigh Coal and Navigation

Company actively promoted the development of techniques for producing iron from anthracite-fueled furnaces. After several failures, success was finally achieved when David Thomas came to America from Wales in 1839. Brought to America by the Lehigh Coal and Navigation Company, David Thomas settled in Catasauqua where he constructed the first commercially successful anthracite-fueled iron furnace in America. He designed and operated this furnace under the auspices of the Lehigh Crane Iron Company which was almost totally capitalized by the leading stockholders and managers of the Lehigh Coal and Navigation Company

The success of the Lehigh Crane Iron Company touched off an "Iron Boom" in the Lehigh Valley. As early as 1856, there were eighteen iron producers on or near the canal, and Allentown and its environs possessed thirty percent of Pennsylvania's iron making capacity. By 1870, there were approximately twenty large scale anthracite-fueled iron-making establishments located on or near the Lehigh Canal with Allentown remaining their focal point.

Within the city itself were several large scale plants. The Allentown Iron Works was established in 1846. It remained in production for almost fifty years. The Allentown Rolling Mills were established to fabricate iron products from local furnaces in 1860. At its peak, this corporation employed 1,200 men and produced 30,000 tons of finished iron works per year.

Other major industries were established on Allentown's Lehigh Canal waterfront. As early as 1854, the firm of Samuel McHose and O. A. Ritter developed a large scale brick works in this part of the "city." The peak production of this firm was approximately 3,500,000 bricks per year. Other industries, such as cloth production and flour milling, also developed along the Allentown banks of the Lehigh Canal. Even today, the Lehigh Canal still serves as a source of water for industrial use. Finally, many Allentown residents worked on the Lehigh Canal itself as boatmen and maintenance workers.

By 1870, when the Lehigh Canal ceased to be the prime factor in Allentown's economic growth, the "city" had matured into an urban area that was characterized by the development of heavy industries. From this point onward, the greater flexibility of rails would allow industries to decentralize and, thus, new areas of the "city" could be utilized for manufacturing.

Finally, it should be noted that the Lehigh Canal possesses outstanding recreational potential. Allentown, Bethlehem and Freemansburg have developed almost all of Section 7 of the Lehigh Canal for hiking, biking and boating. Unfortunately, the almost total destruction of the Hamilton Street Dam has almost completely eliminated the water supply to Section 7 and thus greatly reduced its present recreation value. Since Section 7 passes through the most densely populated part of the Lehigh Valley, it is quite heavily used, and the reconstruction of the Hamilton Street Dam and the consequent rewatering of the canal would benefit many local residents. More importantly, the Lehigh Canal,

as a total recreational resource, is currently being developed along much of its length by various city and county governmental bodies. The rewatering of Section 7 would do much to establish the Lehigh Canal as a linear park, stretching through the Lehigh Valley from Jim Thorpe to Easton. It would become one of Pennsylvania's most scenic and attractive resources.

Addendum to
Hamilton Street Dam (Dam #7)
Upstream of Hamilton Street Bridge across Lehigh River
Allentown
Lehigh County
Pennsylvania

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Historic American Engineering Record
National Park Service
Department of the Interior
Washington, DC 20013-7127

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HISTORIC AMERICAN ENGINEERING RECORD

HAMILTON STREET DAM
(Dam 7)

HAER No. PA-89

Location: Upstream of Hamilton Street Bridge across Lehigh River, Allentown, Pennsylvania.

Description: 510 foot stone and timber crib dam with an effective height of 7.05 feet, impounding a slackwater pool 2200 yards upstream to the outlet lock of Section Six.

History: Originally built in 1829, the dam has several times been rebuilt, and been under constant maintenance until the closing of the canal. The dam was acquired by the City in 1964 from the Lehigh Coal and Navigation Company. The dam was breached along the east side by ice earlier this year (1979), and existing plans by the City and State to replace the dam were accelerated. In the interim, in August, gravel and concrete slabs were dumped in the river, temporarily restoring the river height above the dam and again watering the canal.

Historian: Peter H. Stott, HAER Inventory card, 8/1/79.